

March 95

<sup>1</sup>EXAMPLE

# TRAINING IMPLEMENTATION MATRIX

REVISION #

NAME OF FACILITY/BUILDING

DATE

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<sup>1</sup> The purpose of this example is to assist DOE contractors relative to format, style, and subjects as they develop the Training Implementation Matrix for a facility. The examples provided should not be considered as the specific model to which their organization must restructure, nor are they all-inclusive.

# TRAINING IMPLEMENTATION MATRIX

REVISION #

NAME OF FACILITY/BUILDING

Reviewed by:

_____ DOE Facility/Building Representative	_____ Date	_____ DOE Area Office Manager (If Applicable)	_____ Date
_____ DOE Training Officer	_____ Date		

Approved by:

_____ DOE Operations Office Manager	_____ Date
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# TRAINING IMPLEMENTATION MATRIX

REVISION #

NAME OF FACILITY/BUILDING

Reviewed by:

_____ TIM Preparer	_____ Date	_____ Facility/Building Manager	_____ Date
_____ Facility/Building Training Manager	_____ Date	_____ Facility/Building Maintenance Manager	_____ Date
_____ Facility/Building Operations Manager	_____ Date	_____ Facility/Building Technical Support Manager	_____ Date

Approved by:

_____ Program Manager	_____ Date
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## TRAINING IMPLEMENTATION MATRIX

### I. INTRODUCTION

#### A. PURPOSE

To describe how THIS FACILITY implements the requirements of 5480.20A, "Personnel Selection, Qualification, and Training Requirements at DOE Nuclear Facilities." The Training Implementation Matrix (TIM) defines and describes the application of the selection, qualification, certification, and training requirements in DOE 5480.20A. The TIM defines the organization, planning, and administration of the qualification programs, and sets forth the responsibility, authority, and methods for conducting training. Suitable justification for exceptions taken to any requirement contained in DOE 5480.20A for the Operating Organization will be included in the TIM. Revisions to this TIM are reviewed by the (head of the operations/field office), comments are resolved, and approval is obtained prior to implementation of any change.

#### B. ORGANIZATION OF THE TRAINING IMPLEMENTATION MATRIX

The Matrix contains sections that describe the Operating Organization and the qualification programs for positions in the Operating Organization. It lists each position that is subject to DOE 5480.20A and includes a matrix that shows the status of programs relative to the requirements of DOE 5480.20A.

#### C. FACILITY DESCRIPTION

THIS FACILITY is a Category I, II, or III (high, medium, or low hazard) facility whose mission is to provide the following services. The facility encompasses the following buildings etc. The engineered safety features identified in the facility Safety Analysis Report (SAR) include safety class and safety significant systems and training for these systems is included in the initial and continuing training programs.

### II. FACILITY ORGANIZATION

#### A. OPERATING ORGANIZATION

The Operating Organization includes the Operations Department, the Maintenance Department, the Technical Support/Engineering Department, Training Department. *Figure 1 is an organization chart for THIS FACILITY.*

##### 1. Facility Manager

The Facility Manager is responsible to the Site Director for ensuring that a properly trained, fully qualified staff is maintained in the Operating Organization. The Facility Manager is the certifying official for Shift Supervisors. The Facility Manager is responsible to ensure that all personnel (e.g., maintenance

personnel, subcontractors, trainers, etc.) performing work at the facility are qualified to perform that work.

2. Operations Manager

The Operations Manager is responsible to the Facility Manager for all aspects of operation of THIS FACILITY and on-site common support facility operations. This includes training and qualification of Operations Department personnel on normal, abnormal, and emergency operating procedures and specifications, and training in other areas as applicable to the position. The Operations Manager provides information to the Facility Manager and the Training Manager to ensure that the training program is administered, evaluated, and improved to maintain currency, consistency, and applicability to facility configuration. The Operations Manager is the certifying official for all certified operators subordinate to the Shift Supervisor.

3. Technical Support/Engineering Manager

The Technical Support/Engineering Manager is responsible to the Facility Manager for technical support activities of the facility. This includes training and qualification of all personnel in the Technical Support/Engineering Organization. The Technical Support/Engineering Manager is the qualifying official for personnel in the Technical Support/Engineering Organization. Technical Support/Engineering includes the following categories:

- Facility Safety and Analysis (facility engineering and probabilistic risk assessment),
- Operations Support (procedure review, design review, and operational readiness reviews), and
- Technical Support (engineering and drafting).

4. Maintenance Manager

The Maintenance manager is responsible to the Operations Manager for providing maintenance and support services to the operating organization. Examples of maintenance services are utilities, power service, and alterations and repairs of facility equipment.

(Insert Figure 1)

B. TRAINING ORGANIZATION

1. Training Manager

The Training Manager is responsible to the Facility Manager for all aspects of training program management including the administration of assigned training

personnel, training facilities, equipment, and procedures. The Training Manager is responsible for analyzing, designing, developing, and delivering training to the Operating Organization of THIS FACILITY. *Figure 2 illustrates the Training Organization and its relationship to other site organizations.* The Training Manager:

- a. Establishes a training program that meets the requirements of DOE 5480.20A.
- b. Develops procedures that control and administer the training program(s).
- c. Updates job analysis data as position or equipment changes occur.
- d. Develops training materials for the Operating Organization at THIS FACILITY.
- e. Reviews the training materials prepared by other site organizations to ensure its consistency.
- f. Evaluates training program effectiveness.
- g. Prepares and administers written examinations for personnel in the Operating Organization. Maintain an examination bank of questions for use in examinations.
- h. Maintains an auditable training records system that meets the requirements of DOE 5480.20A.

(etc.)

## 2. Training Coordinators/Instructors

Training Coordinators are responsible to the Training Manager for the administration and management of selected training programs. Duties include ensuring that the following are accomplished: examination/evaluation question banks are maintained and updated, examinations/evaluations are properly prepared and administered on time, training materials are up-to-date, trainers are adequately prepared to deliver training for initial and continuing training programs, training personnel meet the minimum requirements for their job position, and the requirements of DOE 5480.20A are complied with for their assigned programs. The Training Coordinator is normally the senior Training Organization representative on oral qualification boards.

(insert Figure 2)



## C. OUTSIDE TRAINING SUPPORT

1. Training support activities are provided to the Operating Organization by various site organizations (central organizations), including Industrial Hygiene, Site Safety, Word Processing, Graphic Arts, and the Copy Center. Vendor and subcontractor training support is contracted on a case-by-case basis.
2. Training courses and materials supplied by vendors and subcontractors must meet the standards set by the Training Organization. Technical training for Operating Organization personnel must use the systematic approach to training (performance-based), and must be approved by the Training Manager prior to delivery. A member of the Training Organization will attend and monitor all technical training provided by vendors and others outside of the Operating Organization to ensure that the training meets the standards specified. (THIS FACILITY procedure #) contains additional details on control of training provided by vendors and other outside organizations.

## D. SUBCONTRACTOR PERSONNEL

1. All subcontractor personnel who perform job functions at the facility shall be qualified to perform that job function. The Facility Manager is responsible to ensure that subcontractor personnel are qualified to perform their assigned tasks. Personnel shall be considered adequately qualified with proper documentation of at least one of the following:
  - a. The satisfactory result of an audit of subcontractor records which relate to qualification of the subcontractor personnel being considered for assignment by the operating organization, or;
  - b. The operating organization's previous verification (within 2 years) of the ability of the subcontractor employee to perform assigned tasks safely and efficiently, or;
  - c. Successful completion by the subcontractor employee of those segments of the operating organization's qualification program which are considered pertinent to accomplishment of the task to be performed.
2. For subcontractor personnel who do not meet the requirements, work activities on engineered safety features as identified in the facility Safety Analysis Report shall be supervised by a person who meets the qualification criteria established by the operating organization for conduct of the activities. Examples of subcontractors are personnel who perform radiation protection, maintenance, training, in-service inspection, radiography, and welding functions.

### III. QUALIFICATION PROGRAM DESCRIPTION, PLANNING, & ADMINISTRATION

#### A. PROGRAM DESCRIPTION

1. Within two weeks following initial employment, all personnel are required to attend General Employee Training (GET). GET programs are structured to meet the needs of each employee on the basis of job classification. GET programs include training on the following areas:
  - (a) General description of facilities;
  - (b) Job related policies, procedures, and instructions;
  - (c) Radiological health and safety program;
    - 1 Training program content is in accordance with DOE/EH-0256T, *Radiological Control Manual*, Chapter 6, Training and Qualification.
  - (d) Facility emergency plans;
  - (e) Industrial safety/hygiene program;
  - (f) Fire protection program;
  - (g) Security program;
  - (h) Quality assurance program; and
  - (i) Criticality safety.
    - 1 Training program content is in accordance with ANSI/ANS 8.20 - 1991, *Criticality Safety Training*.

Visitors, contracted personnel, and temporary personnel shall be under continuous escort while at the facility unless they have been trained in appropriate areas from the above list as defined in (THIS FACILITY procedure #) to the extent necessary to ensure safe execution of their duties.

Examinations are administered following completion of each segment of the GET program, and refresher training on changes to the GET program and reexamination is conducted periodically. Persons who change job classifications are entered into, and subject to, the GET program contents for the new classification at re-assignment.

2. Entry-level requirements are specified in the (THIS FACILITY) Training Program Manual. Persons entering a qualification program for a specific job position shall meet the entry-level requirements for that position unless a specific exception is granted. Exceptions and justifications for exceptions are described in detail in (THIS FACILITY procedure #) and in a later section of this document.

#### a. Alternatives to Education

Alternatives to education requirements are specified in the (THIS FACILITY procedure #). THIS FACILITY procedure # addresses all DOE 5480.20A alternatives to education requirements. The Alternatives accepted are:

Completion of 80 semester credit hours may be substituted for the baccalaureate requirement and 43 semester credit hours for the

associate degree. The courses shall be in appropriate technical subjects relevant to the position to be filled; and

Related experience may substitute for education at the rate of six semester credit hours for each year of experience up to a maximum of 60 credit hours.

b. Alternatives to Experience

Alternatives to experience requirements are specified in the (THIS FACILITY procedure #). THIS FACILITY procedure # addresses all DOE 5480.20A alternatives to experience requirements. The alternatives to experience accepted are:

Where course work is related to job assignments, post-secondary education may be substituted. Formal education shall not be allowed to substitute for more than 50 percent of the experience requirement unless otherwise stated in Chapters II, III, or IV.

Job-related training in the position sought may qualify as equivalent to nuclear experience on a one-for-one basis for up to a maximum of two years.

3. Training programs for Operating Organization personnel consist of a classroom phase and an in-plant phase. Classroom training includes lectures, seminars, case studies, and computer-aided instruction. Examinations are administered periodically during classroom training and a final comprehensive examination is administered at the completion of classroom training.
4. Certification is the management tool used to ensure each person completing a qualification program has met all program requirements. The positions listed in Appendix 1 are certified at THIS FACILITY. The method used to certify an individual is described in detail in (THIS FACILITY procedure #).
5. A Probabilistic Risk Assessment (PRA) was not (was) conducted for this facility, and as such the requirement is not applicable. (If a PRA was conducted the results of the PRA shall be included in the initial and continuing training programs.)

B. INITIAL TRAINING

Initial training programs are established to ensure that operating organization personnel are qualified to perform job requirements. This is achieved by using a systematic approach to training as defined in (THIS FACILITY procedure #). Initial training program content for individual positions is contained in Appendix 2. Additional information related to attendance, curriculum, quizzes, and comprehensive examinations is contained in (THIS FACILITY procedure #).

## C. CONTINUING TRAINING

Continuing training programs are established to maintain and enhance the knowledge and skills of operating organization personnel who perform functions associated with engineered safety features as identified in the facility Safety Analysis Report. This is achieved by using a systematic approach to training as defined in (THIS FACILITY procedure #). Continuing training includes, training in significant facility system and component changes, applicable procedure changes, applicable industry operating experience, selected fundamentals with emphasis on seldom used knowledge and skills necessary to assure safety, and other training as needed to correct identified performance problems for certain qualified positions. Continuing training is conducted on a two-year cycle and is accomplished by successful completion of comprehensive written examinations, operational evaluations, oral qualification/certification boards or a combination of these as applicable to the position. Certain positions such as maintenance personnel, technical support and management require are required to attend continuing training but by do their jobs qualification is maintained without written examinations and walkthroughs.

Continuing training programs for certified operations personnel consists of preplanned classroom-type training, on-the-job training, and operational evaluations on a regular and continuing basis. Continuing training programs for certified operators and certified supervisors includes, the following:

- (a) Training and examination covering abnormal facility procedures and emergencies is required annually for certified operators and certified supervisors;
- (b) Drills are conducted in the facility or on a simulator to enable personnel and operating teams to maintain their ability to respond to abnormal or accident situations. Training drills conducted in the facility do not lead to nor do they have the potential for safety concerns;
- (c) Instruction in the use of facility systems to control or mitigate accidents. Such training includes both classroom-type training and training conducted in the facility; and
- (d) Training, as applicable to the position, in the following subjects where examinations and experience (industry and facility-specific) or other evidence indicates additional emphasis in scope and depth of coverage are needed:
  - 1 Theory and principles of facility operation;
  - 2 General and specific facility operating characteristics;
  - 3 Facility instrumentation and control;
  - 4 Facility protection systems;
  - 5 Engineered Safety Features;
  - 6 Normal, abnormal, and emergency procedures;
  - 7 Radiation control and safety; and
  - 8 Technical Safety Requirements.

{Continuing training is conducted on every day-shift for persons on shift-work. Persons who work a normal day-shift attend continuing training with the shift-crews. (many ways

to do this)) All persons in the Operating Organization are required to attend all elements of the continuing training program sessions during a cycle. Appendix 3 contains categories that are included in the continuing training program for individual positions. Category content is varied on the basis of identified needs and facility and industry changes and operating experience.

#### D. PROGRAM PLANNING

##### 1. Position Analysis

All qualification programs will be developed using the systematic approach to training system. As a minimum, an analysis of the job was performed when planning a qualification program for operators and maintenance personnel. A needs analysis will be used to identify the training program content for technical support personnel.

#### E. PROGRAM ADMINISTRATION

Qualification programs will normally require completion of both classroom training and in-plant qualification phases. Upon completion of the qualification phase, certain job positions will require one or more final activities, which may include: (1) a written examination, (2) an operational evaluation, {and (3) a final oral board if a certified position}. If any of these activities are not satisfactorily completed, the person fails to qualify for that position and may not perform work in that job position. All specified activities must be satisfactorily completed before the person may be allowed to perform in that job position. Qualification Cards and a Qualification Manual are used by all persons qualifying for a position.

##### 1. Qualification Cards

The Qualification Card is used to record completion of certain portions of qualification. Qualification Card items include completion of each classroom lecture (including written examination scores), completion of individual oral examinations covering theory of operation of equipment or systems in the facility, and completion of individual performance items. Qualification cards contain signatures and dates that establish qualification or certification, and are the official record of such.

##### 2. Qualification Manual

{The Qualification Manual describes how certain activities will be accomplished. For example, for an oral examination on the theory of operation of a diesel engine, the Qualification Manual lists certain areas that are to be covered in the oral examination. For a performance item, it lists items such as the following: startup the diesel, shutdown the diesel, perform all emergency and casualty procedures, and identify all normal readings and alarms that occur during start-up and shutdown. When a performance item is required, the Qualification Manual contains an evaluation guide that must be used by the instructor so that

consistency is maintained.(The requirement of a qual manual, is dependent on the hazard classification of the facility and the qualification rigor which must be attained.))

## F. PROGRAM REVIEWS/EVALUATIONS

THIS FACILITY training programs are routinely evaluated by Training Organization personnel, students, supervisors, THIS FACILITY management, DOE personnel, and THIS FACILITY Environmental Safety and Quality personnel. Evaluations are conducted to ensure that the training programs are achieving the training program objectives and the objectives of THIS FACILITY, and to identify the actions needed to achieve these objectives or improve the quality of the training programs. Specific review and evaluation criteria is contained in (THIS FACILITY procedure #).

### 1. Changes to the Training Program

Changes to the training program may be initiated for a variety of reasons. Plant modifications, administrative changes, operating experience, internal and external evaluations, and lessons learned from industry experience are some of the reasons the training program is changed. The need for changes to training materials or courses may also be identified by the trainer, the user organization, the Environmental Safety and Quality Organization, facility operators, or others. When the need for a change has been identified, a Training Change Request (TCR) is initiated to define the scope of the change. The TCR is assigned to the cognizant section of the Training Organization for completion. Revisions to training programs are subject to the same review and approval as a new program.

### 2. Exceptions to Training

Exception from certain portions of the training program may be granted on the basis of the individual's experience, education, and training that is related to the particular job. The Operations Manager reviews and approves/ disapproves requests for exceptions to qualification/ certification requirements. Suitable justification must accompany all requests for exception, and must include signature concurrence of the candidate's immediate supervisor.

The procedure that controls exceptions to training (THIS FACILITY procedure #) has been approved by the DOE Operations Manager.

### 3. Extensions of Qualification/Certification

(THIS FACILITY procedure #) establishes policy, responsibility, and authority for extending qualification or certification beyond the normal expiration date. Qualification extensions are granted by facility management. Certification extensions must be approved by the DOE Operations Office Manager.

4. Proficiency

Certified personnel maintain proficiency in accordance with (IAW) the requirements of DOE 5480.20A. Proficiency requirements are kept in the THIS FACILITY Proficiency Manual or procedure. The records of proficiency are located in the \_\_\_\_\_ office. It contains the detailed requirements for watchstanding and performance requirements that must be met by certified personnel.

5. Control Manipulations

Certified personnel must perform control manipulations for initial certification annually, and on a biennial basis for continuing training. These control manipulations consist of (list the control manipulations that each certified position must do). The certified supervisors need only supervise the control manipulations after initial certification.

6. Examination/Reexamination

Examinations are prepared and administered in accordance with (THIS FACILITY procedure #). THIS FACILITY procedure # contains the requirements for examination/evaluation development, approval, security, administration, remediation, and maintenance of examination question banks.

a. Oral Boards

Oral boards are conducted for certified positions only as (a one-on-one walkthrough or by an oral board or committee) consisting of personnel identified by contractor facility management. The oral board content evaluates the candidate's operational knowledge (initial/continuing training program subjects) and organizational awareness (e.g., operating philosophy, use of procedures, shift and relief turnovers, verification of system/equipment status) to determine how the individual will function in an operating environment.

b. Performance Demonstrations

The performance demonstrations are administered to qualified positions. The demonstration contains observations that the candidate has the knowledge and skills to perform the job function of qualified position. The demonstration requires the candidate to demonstrate an understanding of, and the ability to perform the actions necessary to accomplish a job function and may include oral questions. The demonstration shall be administered to candidates who work on engineered safety features identified in the facility safety analysis report (FSAR).

c. Operational Evaluations

The operational evaluations are administered to certified positions. The evaluation contains questions and operational exercises and includes a facility walkthrough, and may include system and/or component operation. Operational evaluations require the candidate to demonstrate an understanding of, and the ability to perform the actions necessary to accomplish a representative sampling from the following items:{as applicable}

- (1) Perform prestartup procedures, including operating of controls associated with equipment which could affect criticality safety;
- (2) Manipulate the controls as required to control the nuclear process between system or component shutdown and normal process operation;
- (3) Identify annunciators and condition-indicating signals and perform appropriate remedial actions;
- (4) Identify instrumentation systems and the significance of associated instrument readings;
- (5) Observe and safely control the operating behavior characteristics of the facility;
- (6) Perform control manipulations to obtain desired operating results during normal, abnormal, and emergency situations;
- (7) Safely operate auxiliary and emergency systems, including controls of facility equipment that could affect criticality safety or release radioactive or other hazardous material to the environment;
- (8) Demonstrate or describe the use and function of radiation monitoring systems, including fixed radiation monitors and alarms, portable survey instruments, and personnel monitoring systems;
- (9) Demonstrate knowledge of significant radiation hazards, including permissible levels in excess of those authorized and ability to perform other procedures to reduce excessive radiation levels and to guard against personnel exposure;
- (10) Demonstrate knowledge of the emergency plan, including, as appropriate, nuclear facility operator or supervisor responsibility to decide whether the plan should be executed and assigned duties under the plan;
- (11) Demonstrate knowledge and ability, as appropriate to the assigned position, to assume the responsibilities associated with safe operation; and



- (12) Demonstrate the ability to function within the facility or the control room as a team, as applicable to the facility and to the position, in such a way that procedures are adhered to and Technical Safety Requirements are not violated.

#### 7. Qualification Records

Qualification and certification records are maintained in accordance with (THIS FACILITY procedure #). THIS FACILITY procedure # addresses all requirements of DOE 5480.20A. Personnel education, experience, and employment history and most recent health evaluation summary are included in each individual training record (If this not done, take an exception to the requirement and state why and where this information can be found).

### IV. APPLICATION OF REQUIREMENTS

THIS FACILITY applies the requirements of DOE Order DOE 5480.20A to all areas and positions to which the Order applies. Where necessary THIS FACILITY procedures and requirements will be modified to meet the requirements of the Order. The Matrix contained in Table 1 shall be used as an overall implementation schedule for THIS FACILITY for implementation of any requirement that is not currently met. The Facility Manager (with DOE field organization concurrence) will determine priority ranking for implementing requirements that are not currently met.

APPENDIX 1  
CERTIFIED AND QUALIFIED POSITIONS

A. CERTIFIED POSITIONS

The following positions in the Operating Organization are certified at THIS FACILITY;

1. Senior Reactor Operator
2. Reactor Operator
3. Process Operator
4. Z Operator
5. Shift Supervisor
6. ....
7. ....

B. QUALIFIED POSITIONS

The following positions in the Operating Organization are qualified at THIS FACILITY:

OPERATORS

1. Utility Operator
2. Power Operator
3. ....
4. ....

TECHNICIANS AND MAINTENANCE PERSONNEL

1. Instrument Technicians
2. Radiation Protection Technicians
3. Chemistry Technicians
4. Mechanics
5. Electricians
6. ....
7. ....

TECHNICAL SUPPORT PERSONNEL

1. ....
2. ....
3. ....

MANAGERS AND SUPERVISORS

1. Operations Manager
2. Technical Manager
3. Maintenance Manager
4. ....

## APPENDIX 2 INITIAL TRAINING PROGRAMS

### PROCESS Z OPERATOR

#### Fundamentals Training (examples)

THIS FACILITY Emergency Plan  
THIS FACILITY Organization  
Company Manual Indoctrination  
Use of Procedures  
Introduction to Technical Specifications  
Basic Atomic and Nuclear Physics  
Mechanical Science  
Electrical Science/Electrical Safety  
Basic Facility Instrumentation and Control  
Engineering Drawings, Prints, and Schematics  
Criticality Safety  
Radiation Worker Training  
Fire Protection  
Industrial Safety/Industrial Hygiene  
Hazardous Material (Haz Com/Haz Mat)  
Configuration Control  
etc.

#### Systems Training (examples)

Waste Processing Systems  
Utility Cooling Water System  
Utility Demineralized Water System  
Instrument Air System  
Heating, Ventilation, and Air Conditioning Systems  
Fire Protection System  
Primary Process System  
Product Receiving and Transport System  
Emergency Cooling System  
Electrical Distribution System  
Emergency Electrical Power Distribution System  
etc.

#### On-The-Job Training

Z Operators are assigned to operating crews for a period of 4 months upon completion of Systems training. The Performance Requirements section of their Basic Qualification Cards is completed during this period.

### Evaluation (examples)

The Z Operator initial training program is evaluated for effectiveness in the following ways:

1. Weekly examinations are conducted in Fundamentals and Systems training.
2. Final comprehensive examinations are administered on completion of Fundamentals training and Systems training.
3. An Operational Evaluation is administered by the operating crew on completion of the Basic Qualification Card.
4. A comprehensive written examination is administered following successful completion of the Operational Evaluation.
5. A Qualification Review Board is conducted when all prerequisite examinations have been completed.

(THIS FACILITY procedure #) contains detailed requirements for training program evaluation.

## <sup>2</sup>APPENDIX 3 CONTINUING TRAINING PROGRAM

Lessons learned from facility operating experience;

Lessons learned from industry operating experience;

Changes to facility procedures and equipment;

Refresher training on selected Initial Training topics;

Selected fundamentals with emphasis on seldom used knowledge and skills necessary to assure safety;

Other topics identified by management or personnel in the Operations Organization as needed to correct identified performance problems;

etc.

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<sup>2</sup>This list is not intended to represent all that is required in a continuing training program. It merely represents typical topics.

## APPENDIX 4

### LIST OF NUCLEAR FACILITIES

The classification of nuclear facilities was determined under DOE Order 5480.23, *Nuclear Safety Analysis Reports*, which establishes requirements for developing and documenting the results of the Facility Safety Analysis. The criteria for these determinations was provided by DOE STD 1027-92, "Hazard Categorization and Accident Analysis Techniques for Compliance with DOE 5480.23, *Nuclear Safety Analysis Reports*."

The following is a description of the Category ?? facilities included in this TIM.

ADDITIONAL GUIDANCE FOR COMPLETING A  
5480.20A TRAINING IMPLEMENTATION MATRIX (TIM)

The following describes how to complete each column of the new, more detailed TIM.

Req. (Requirement) Met Yes/No column - Evaluate the current practice at the facility and determine if the requirement is met. Enter Yes in this column if the requirement is met and No if it is not fully met. If the requirement is not applicable at the facility enter N/A in this column and provide a brief explanation in the "Compliance Reference, Corrective Action, or Justification column.

Exception Taken to Req. (Requirement) column - Enter Yes in this column if an exception is being taken to the requirement and No if one is not being taken.

Compliance Reference, Corrective Action, or Justification column - If the requirement is met (Yes was entered in the Requirement Met column) list the procedure, document, or practice in place at the facility that satisfies the requirement or ensures that it will continue to be met. This reference should be detailed enough such that the procedure, document, or practice can be located (a chapter number or procedure number should be given instead of just the manual or document number). If the requirement is not met, enter the corrective action that will be taken to come in compliance with the requirement. If an exception is being taken to the requirement, enter the justification for the exception in this column. The justification should explain why the exception is being taken and why taking the exception does not adversely affect the training of personnel at the facility. If the requirement is not applicable to the facility a brief explanation should be provided here.

Action to Be Taken By column - Enter the group or person responsible for completing corrective actions for requirements that are not met. This column and the next column will be left blank if the requirement is met or an exception is being taken.

Completion %/Date column - Enter the estimated percentage of compliance at the present time and the date the corrective action will be completed. The date provided in this column should be based on and supported by detailed planning and scheduling activities which will ensure that the requirement(s) is met by the commitment date.

ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
<b>GENERIC REQUIREMENTS</b> (New requirements indicated with a *)					
<u>CONTRACTOR REQUIREMENTS DOCUMENT</u>					
*6. Perform periodic systematic evaluations of training and qualification programs.					
<b>CHAPTER I GENERAL REQUIREMENTS</b>					
<b>2. TRAINING ORGANIZATION</b>					
One or more organizations are established to be responsible for the training of operating organization personnel.					
*This organization(s) is held accountable for providing facility line management with the support necessary to ensure that personnel in the operating organization are qualified to safely and effectively meet job requirements.					
The responsibilities, qualifications, and authority of training organization personnel (including subcontractors) are documented, and managerial responsibilities and authority clearly defined.					
<b>3. SUBCONTRACTOR PERSONNEL QUALIFICATION</b>					
Subcontractor personnel meet the qualification requirements for the job function to be performed.					
The operating organization ensures that subcontractor and temporary personnel who perform specialized activities such as radiation protection, maintenance, in-service inspection, radiography, and welding are qualified to perform their assigned tasks by properly documenting one of the following:  a. The satisfactory result of an audit of subcontractor records which relate to qualification of the subcontractor personnel being considered for assignment by the operating organization; or					

Justification must be supplied for any Exception taken.



ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
b. Previous verification (within 2 years) of the ability of the subcontractor employee to perform assigned tasks safely and efficiently; or  c. Successful completion by the subcontractor employee of those segments of the operating organization's qualification program which are considered pertinent to the accomplishment of the task to be performed.					
Subcontractor personnel who do not meet the requirements, for work activities on engineered safety features identified in the facility Safety Analysis Report are supervised by a person who meets the qualification criteria established by the operating organization for conduct of such activities.					
<b>4. PERSONNEL SELECTION</b>					
a. A process for selecting and assigning personnel into the operating organization is established.					
b. DOE approval is required on a case-by-case basis for individuals who do not meet experience requirements for a position but are assigned to the position based on a determination that the overall operating organization is balanced and strong.					
<b>5. QUALIFICATION PROCESS</b>					
a. Qualification requirements for personnel in each functional level are defined based on the criteria in 5480.20A.					
c. Technician and maintenance personnel qualification includes demonstrated performance capabilities (performance demonstrations) to ascertain their ability to adequately perform assigned tasks.					
Participation in continuing training programs is required to maintain and improve their abilities to continue to function safely in the operating organization.					

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*d. The successful completion of the requalification program and formal requalification of operators and their immediate supervisors is indicated by signature.					
<i>(THE REMAINDER OF THE REQUIREMENTS OF THIS SECTION (examination requirements) ARE REPEATED ELSEWHERE IN THE ORDER AND NOT REFERENCED HERE)</i>					
e. Qualification may be granted only after assuring that all requirements (including training and examinations as required) and other specified requirements (e.g., medical examination) have been satisfactorily completed.					
f. Qualification of operators and their immediate supervisors is valid for a period not to exceed two years unless revoked for cause (e.g., medical disqualification, performance deficiencies).					
<b>6. CERTIFICATION PROCESS</b>					
a. Certification is governed by written procedures which include requirements for documented assessment of a person's qualifications through examinations and operational evaluations.					
b. Certification may be granted only after assuring that all qualification requirements (including written and oral examinations and operational evaluations) and other specified requirements (e.g., medical examinations) have been satisfactorily completed,					
And management has assured that the person is capable of safely performing all functions of the position.					
Certification is verified by a person or group other than the person or group that provided the training or the candidate's immediate supervisor.					
Certification is valid for a period not to exceed two years.					
c. Certification is required of positions equivalent to positions listed in 5480.20A.1.6.c.					

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All other operator or immediate supervisor positions to be certified are identified in the Training Implementation Matrix.					
<b>7. TRAINING</b>					
*Training to support qualification and certification programs is based on a systematic approach to training.					
*A graded approach is used to establish the systematic approach to training for operations personnel, maintenance personnel, technicians, and the technical staff.					
<b>a. General</b>					
Training programs consist of a combination of classroom-type and on-the-job training, including simulator and laboratory training as applicable.					
(1)(a) Personnel who are appointed to positions in the operating organization subsequent to approval of the Training Implementation Matrix required by DOE 5480.20 of 2-20-91 meet the education and experience requirements of this DOE 5480.20A.					
(1)(b) Personnel who are appointed to positions in the operating organization prior to the approval of the TIM are required to participate in job-specific training and qualification/certification programs and subsequent continuing training programs.					
(3) Qualification and certification programs are reviewed by facility management and kept up to date to reflect changes to the facility, Safety Analysis Reports, Technical Safety Requirements, procedures, regulations, and applicable industry operating experience.					
Team training is incorporated into the training program if job functions require team solutions and activities.					
<b>b. Training Process</b>					

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*A systematic approach to training is used to establish initial and continuing training programs to ensure operating organization personnel are qualified to perform job requirements.					
<b>c. Initial Training</b>					
Initial training programs are established for operating organization personnel at operable nuclear facilities to develop or enhance their knowledge and skills to perform job assignments.					
Examinations (written, oral, operational evaluations, performance demonstrations) on material included in the training programs are administered and documented as appropriate.					
Operational use of trainees is in accordance with (IAW) 5480.20A.I.7.c.					
<b>d. Continuing Training</b>					
Continuing training programs are established for operating organization personnel who perform functions associated with engineered safety features as identified in the facility Safety Analysis Report.					
(1) Continuing training is structured commensurate with specific position needs.					
Continuing training is administered on a cycle not to exceed two years.					
*Continuing training includes, at a minimum, training in significant facility system and component changes, applicable procedure changes, applicable industry operating experience, selected fundamentals with emphasis on seldom used knowledge and skills necessary to assure safety, and other training as needed to correct identified performance problems.					

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(2) Periodic examinations (written, oral, operational evaluations, performance demonstrations, as applicable to the position) are administered and documented throughout the cycle on material included in the operator (operators and their immediate supervisors) training programs.					
(3) Continuing training programs for certified operators include preplanned classroom-type training, on-the-job training, and operational evaluations on a regular and continuing basis.					
Continuing training programs for certified operations personnel includes, at a minimum, the following training items as related to job performance:					
(a) Training and examination covering abnormal facility procedures and emergencies at least annually for certified operators and certified supervisors;					
(b) Training drills conducted in the facility or on a simulator to enable personnel and operating teams to maintain their ability to respond to abnormal and accident situations.					
Training drills conducted in the facility do not lead to or have the potential for safety concerns					
(c) Instruction in the use of facility systems to control or mitigate accidents, including both classroom and training conducted in the facility.					
(d) Training on the subjects indicated in 5480.20A.I.7.d.(4).(d) 1 through 8 as applicable to the position, whenever examinations and experience (Industry and nuclear facility specific) or evidence indicates a need for emphasis.					
<b>e. General Employee Training (GET)</b>					
A GET program is in place and all persons are trained in the subjects specified in 5480.20A.I.7.e.(1) commensurate with their job duties.(* Criticality safety has been added as a subject)					

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(2) Visitors, contracted personnel, and temporary personnel are under continuous escort while at the facility unless they have been trained in appropriate areas from the subjects specified above to the extent necessary to ensure safe execution of their duties.					
(3) A written examination covering the areas specified in 5480.20A.1.7.e.(3) is required for all personnel except short-term visitors.					
Persons who do not pass this examination are not permitted access without a continuous escort.					
(4) Changes in GET areas identified in 1.7e(1) of the Order are included in continuing training programs for all facility personnel.					
<b>f. Probabilistic Risk Assessment (PRA) Training</b>					
For those facilities for which a PRA <b>HAS BEEN PERFORMED</b> , PRA results are included in initial and continuing training programs for operations and technical support personnel IAW 5480.20A.1.7.f.					
<b>g. Technician and Maintenance Personnel Training</b>					
(1) Personnel in this category are qualified to perform tasks associated with their job specialty, or are directly supervised.					
(2) Training is provided on engineered safety features identified in the facility Safety Analysis Report and includes the systems (as applicable) and elements specified in 5480.20A.1.7.g.(2).					
*(3) Training program content for radiological control technicians (RCT) is in accordance with the requirements contained in 10 CFR 835, <i>Occupational Radiation Protection</i> , and DOE/EH-0256T, <i>DOE Radiological Control Manual</i> .					

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RCT training program elements (i.e., selection, training process, continuing training, qualification) are in accordance with the requirements of this Order.					
<b>h. Technical Staff Training</b>					
(1) A list of specific technical staff personnel positions that have a direct impact on employee, facility, of public safety is developed.					
(2) A training program is established for entry-level technical staff personnel.					
Subject areas (as appropriate to the position) specified in 5480.20A.I.7.h.(2) are included in the training program.					
<b>i. Management and Supervisory Training</b>					
The topics listed in paragraph I.7.h.(2) are included as appropriate.					
Training programs for managers and first line supervisors are established and contain the topics listed in 5480.20.I.7.i.(1)&(2) as appropriate.					
<b>8. OPERATOR AND SUPERVISOR EXAMINATIONS</b>					
Comprehensive written and oral examinations and operational evaluations are prepared and administered for initial certification of certified operators and supervisors.					
Comprehensive written examinations and individual *performance demonstrations are prepared and administered for the initial qualification of other operators and supervisors.					
Separate oral examinations and operational evaluations are administered to Category A personnel (they may be combined for Category B and non-reactor nuclear facilities).					
These examinations contain a representative sampling of the knowledge and skills identified in and derived from the learning objectives resulting from the systematic analysis of the position,					

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And from information in Safety Analysis Reports, Technical Safety Requirements, system description manuals and operating procedures, lessons learned from Occurrence Reports, and other applicable sources.					
a. Written procedures which address examination/evaluation development, approval, security, and administration are in place to administer examinations and operational evaluations.					
Written procedures are in place to establish and maintain examination question banks.					
b. The oral examination content is tailored to evaluate the candidate's operational knowledge (initial/continuing training program subjects) and organizational awareness to determine how the individual will function in an operating environment.					
<b>9. OPERATOR AND SUPERVISOR REEXAMINATIONS</b>					
Reexaminations for certified and qualified operators and supervisors include subjects in which the person is expected to be knowledgeable and emphasize those subjects covered by the continuing training program.					
Comprehensive biennial examinations or periodic examinations throughout the continuing training cycle are administered.					
Written examinations and performance demonstrations are administered to requalify operators and supervisors.					
Written and oral examinations and operational evaluations are administered to recertify operators and supervisors.					
Separate biennial oral examinations and operational evaluations are administered to Category A personnel (they may be combined for Category B and non-reactor nuclear facilities).					
<b>10. REQUALIFICATION</b>					

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Operators and their supervisors are not allowed to continue to function in qualified or certified positions if they have not completed all of the requalification or recertification program elements (continuing training and associated examinations) within the two year continuing training cycle.					
If a qualified or certified operator or supervisor fails a requalification or recertification examination, or shows serious job performance deficiencies which indicate that he or she may perform in an unsafe manner, the individual is removed from activities requiring qualification or certification.					
a. Qualification or certification is regained only after completing remedial training designed to correct the deficiency(s) and					
Satisfactory completion of a reexamination.					
(1) <u>Recertification</u> includes a review of individual operating performance during the past certification period by either line management, by a committee, or by a person designated by management and					
a current medical examination.					
b. When a certified operator or supervisor has been absent from certification duties for greater than 3 months, but less than 12 months, selected retraining (including written and oral examinations and operational evaluations) is provided as deemed necessary prior to reassignment to certification duties.					
If the absence is greater than 12 months, comprehensive written and oral examinations and operational evaluations (as required of initial candidates) are given to determine weak areas.					
Retraining and reexamination are required in areas of weakness.					
<b>11. EXCEPTIONS TO TRAINING</b>					

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In all cases, the requisite examinations (as described in I.8) to establish qualification are completed.					
a. Written procedures and criteria are in place for taking and documenting exceptions to the initial training program requirements of 5480.20A.					
The name of the person, the specific subject for which the exception is requested, and the justification are included as part of the documentation for each exception.					
The operating organization ensures that sufficient facility-specific instruction is provided to enable the candidate to perform job requirements.					
Exception procedures are submitted to and approved by the DOE Operations Office Manager.					
c. Individual exceptions are approved by contractor management after approval of the exception procedure by the Operations Office Manager.					
d. If challenge examinations are administered, they are sufficiently comprehensive to adequately test the learning objective(s) that are stated in the training program.					
<b>12. EXTENSIONS</b>					
a. Written procedures which include the elements contained in 5480.20A.I.12.a.(1) through (3) are in place to control extensions of qualification and certification.					
b. Extension of certification is approved by the Operations Office Manager.					
Extension of qualification is approved by contractor management.					
<b>13. ALTERNATIVES TO EDUCATION AND EXPERIENCE</b>					
a. Alternatives to the education requirements specified are considered on a case-by-case basis and approved and documented by the operating organization.					

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A system or written procedure is in place for determining alternatives to educational requirements using the guidelines provided in 5480.20A.					
(4) Related experience may substitute for education at the rate of six semester credit hours for each year of experience up to a maximum of 60 credit hours.					
b. A system or written procedure is in place for determining alternatives to experience requirements using the guidelines provided in 5480.20A.					
(1) Formal education is not allowed to substitute for more than 50 percent of the experience requirement unless otherwise stated in 5480.20 requirements.					
(2) Job-related training in the position sought may qualify as equivalent to nuclear experience on a one-for-one basis for up to a maximum of two years.					
<b>15. RECORDS</b>					
Written procedures are in place that specify requirements for the maintenance of training, qualification, and certification records for operating organization personnel.					
a. Qualification and certification of personnel is documented in an easily auditable format.					
<b>Individual</b> qualification and certification records include all items specified in 5480.20A.I.15.a.(1) through (7).					
b. A historical record that documents initial qualification or certification, and applicable information from a. above, that verifies the most recent qualification or certification is retained in individual records.					

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Rev. # \_\_\_\_\_ Date \_\_\_\_\_ TABLE 2 - CATEGORY A REACTOR PERSONNEL

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<b>CHAPTER II CATEGORY A REACTOR PERSONNEL</b>					
<b>2. ENTRY-LEVEL</b>					
<b>a. Managers</b>					
(1) <u>Plant Manager</u>					
(a) Has a BS in engineering or related science.					
(b) Experience; 6 years nuclear (3 years may be power plant experience), 4 years supervisory or management, and 6 months on site.					
(c) Holds or has held a Senior Reactor Operator (SRO) certification at similar Category A reactor (or equivalent) or has been certified at an appropriate simulator. If an assistant holds a SRO certification the Plant Manager need not meet this requirement.					
(2) <u>Operations Manager</u>					
(a) Has a BS in engineering or related science.					
(b) Experience; 4 years nuclear (1 year may be power plant experience) and 6 months on site.					
(c) Holds an SRO certification at the time of appointment.					
(3) <u>Maintenance Manager</u>					
(a) Has a BS in engineering or related science.					
(b) Experience; 4 years nuclear (2 years may be power plant experience) and 6 months on site.					
(c) Is familiar with nondestructive testing and understands electrical, pressure vessel, and piping codes and standards.					

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<b>(4) <u>Technical Manager</u></b>					
(a) Has a BS in engineering or related science.					
(b) Experience; 4 years nuclear (1 year may be power plant experience) and 6 months on site.					
<b>(5) <u>Training Manager</u></b>					
(a) Has a Baccalaureate including courses in education, and technical subjects.					
(b) Experience; 4 years job related which includes 2 years nuclear.					
*(c) If Training Manager does not hold or has not held an SRO certification, another person that is SRO certified is responsible to the Training Manager for content and conduct of the certified operator training program.					
<b>b. <u>Supervisors</u></b>					
<b>(1) <u>Shift Supervisor</u></b>					
(a) Has a High School Diploma.					
(b) Experience; 4 years nuclear (2 years may be power plant experience).					
(c) Holds and maintains SRO certification.					
<b>(2) <u>Senior Reactor Operator</u></b>					
(a) Has a High School Diploma.					
(b) Experience; 4 years power plant (2 years may be academic or related technical training), 2 years nuclear (1 year as Reactor Operator (RO) at the facility), and 6 months on site. The 1 year of RO experience is not needed if the candidate has a BS in engineering or equivalent.					

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Rev. # \_\_\_\_\_ Date \_\_\_\_\_ **TABLE 2 - CATEGORY A REACTOR PERSONNEL**

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(c) If candidate for SRO has a BS or equivalent:					
Participates as a regular RO candidate in reactor plant operations at power levels of at least 20% power for at least six weeks.					
Performs all control manipulations an RO candidate would perform.					
(3) <u>Qualified Supervisor</u>					
(a) Has a High School Diploma.					
(b) Experience; 4 years job related, 1 year nuclear, and 3 months on site.					
<b>c. Technical Staff</b>					
(1) <u>Reactor Engineering</u>					
(a) Has a BS in engineering or related science.					
(b) Experience; 4 years job related which includes 2 years nuclear and 6 months on site.					
(c) Nuclear experience includes such areas as reactor physics, core measurements, core heat transfer, and core physics testing programs.					
(2) <u>Instrumentation and Control (I&amp;C)</u>					
(a) Has an Associates Degree in engineering or related science.					
(b) Experience; 2 years job related, which includes 1 year nuclear and 6 months on site.					
(3) <u>Chemistry and Radiochemistry</u>					
(a) Has a BS in chemistry or related science.					

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(b) Experience; 2 years job related, which includes 1 year nuclear and 6 months on site.					
(c) Has 1 year nuclear experience in radiochemistry.					
(4) <u>Radiation Protection</u>					
(a) Has a BS in science or engineering, which includes formal training in radiation protection.					
(b) Experience; 4 years job related, which includes 3 years nuclear on a professional-level, and 6 months on site.					
(5) <u>Preoperational Testing Engineer</u>					
(a) Baccalaureate in engineering or related science					
(b) Experience; 1 year Nuclear (The required nuclear experience may be power plant experience)					
(c) Is knowledgeable of test program administration and the design and operational performance requirements of the system and equipment being tested and its interaction with other systems. performance testing (as applicable to job).					
(6) <u>Startup Testing Engineer</u>					
(a) Has a BS in engineering or related science.					
(b) Experience; 2 years nuclear of which 1 may be power plant.					
(c) Is knowledgeable of test program administration, system design and operational requirements, and expected plant operational characteristics during the test.					
(7) <u>Shift Technical Advisor</u>					
(a) Has a BS in engineering or related science.					

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(b) Experience; 1 year nuclear and 6 months on site.					
(c) Is knowledgeable of control room instrumentation and controls and is assigned to advise the responsible shift supervisor.					
<b>d. Training Organization Personnel</b>					
(1) <u>Training Coordinators</u>					
(a) Has a High School Diploma					
(b) Experience; 2 years nuclear or power plant and 6 months on site.					
(2) <u>Training Instructors</u>					
(a) Has a High School Diploma.					
(b) Experience; consistent with the material being presented.					
(c) Special requirements:					
Simulator instructors for certified personnel hold or have held SRO certification on similar Category A reactor (or equivalent) or have been certified on the reactor simulator.					
Instructors responsible for training on Technical Safety Requirements, operating principles and characteristics, and control manipulations have received SRO or equivalent training.					
Demonstrated knowledge of instructional techniques through training or experience and qualified by the Training Manager (or equivalent) for the material being presented.					
<b>e. Operators, Technicians, and Maintenance Personnel</b>					
(1) <u>Qualified Auxiliary Operators</u>					

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(a) Has a High School Diploma.					
(b) Experience; 1 year nuclear or power plant if the qualified process operator's actions could affect the quality of structures, systems, and components important to safety.					
(2) <u>Reactor Operator</u>					
(a) Has a High School Diploma.					
(b) Experience; 3 years nuclear, of which 2 years may be power plant experience and 6 months as a qualified auxiliary operator at the reactor for which certification is sought.					
(3) <u>Technicians</u>					
(a) Has a High School Diploma.					
(b) Experience; 3 years job related.					
(4) <u>Maintenance Personnel</u>					
(a) Education: journeyman level					
(b) Experience; 3 years related maintenance.					
<b>3. MEDICAL EXAMINATIONS</b>					
An initial medical examination is administered to candidates.					
Certified operators and certified supervisors are reexamined at least every two years.					
Certified operators and certified supervisors are medically cleared prior to returning to work following any sickness or injury which keeps the person from performing duties for a period exceeding one month.					

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Examinations are conducted per ANSI/ANS 3.4-1983 and NRC Regulatory Guide 1.134, Rev 2, 4-87.					
Medical examination requirements for other Operating Organization personnel are in accordance with established procedures.					
<b>4. ENGINEERING EXPERTISE ON SHIFT</b>					
The Operating Organization ensures each operating shift has adequate engineering and accident assessment expertise.					
If the STA is combined with the SRO position, the applicant must meet the following requirements:					
a. Currently certified as a senior reactor operator; and					
b. Successful completion of the STA training requirements in subparagraph II.6.a, and one of the following educational requirements:					
(1) Baccalaureate in engineering;					
(2) Professional engineer's license;					
(3) Baccalaureate in engineering technology including course work in the physical, mathematical, or engineering sciences; or					
(4) Baccalaureate in a physical science including course work in the physical, mathematical, or engineering sciences.					
<b>5. SIMULATORS</b>					
Each DOE production reactor has a full scope simulator IAW section II.5.					
a. If full-scope simulator is used for more than one production reactor the differences between the simulator and reactor are identified and documented by the operating organization and					

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Approved by the Operations Office Manager.					
b. The need for a full scope or partial-task simulator for Category A test and research reactors is based on evaluations by the Operating Organization IAW section II.5.b. and					
Approved by the Operations Office Manager and the cognizant Secretarial Officer.					
<b>6. SPECIFIC TRAINING</b>					
<b>a. Shift Technical Advisor</b>					
STA training includes the items listed in section II.6.a.(1)-(6).					
<b>b. Fuel Handling Operations</b>					
Fuel handling operations are performed by or under direct supervision of a certified person.					
If fuel handling is performed by persons not qualified for fuel handling under regular certifications additional requirements must be met IAW section II.6.b.					
<b>c. Control Manipulations</b>					
A control manipulations list is established based on an analysis of the job.					
The list specifies annual and biennial manipulations.					
RO and SRO candidates perform a minimum of five significant reactivity additions.					
<b>d. Reactor Operator Written Examinations</b>					
Examinations include a representative sampling of the items listed in II.6.d. as appropriate to the position and to the facility.					

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<b>e. Senior Reactor Operator Written Examinations</b>					
The examination includes a representative sampling from the items listed in II.6.e.(1)-(7), in addition to those required for reactor operators, as appropriate to the position and to the facility.					
<b>f. Operational Evaluations</b>					
Administered to reactor operator and senior reactor operator candidates are generally similar in scope.					
Include a facility walkthrough or a combination walkthrough and simulator examination (for those DOE facilities having simulators).					
Are consistent with an analysis of the job.					
Require the candidate, to the extent possible to demonstrate an understanding of and the ability to perform, the actions necessary to accomplish a representative sampling from the items listed in II.7.f.(1)-(13).					
<b>g. Operating Crew/Shift Training</b>					
(1) RO trainees are assigned to an operating shift crew under the control of a certified RO for a minimum of 3 months with no concurrent duties that are not related to operation of the facility.					
The trainee shall manipulate the facility controls and perform the same duties as a certified reactor operator.					
(2) SRO trainees are assigned to an operating shift crew under the control of a certified SRO for a minimum of 3 months with no concurrent duties that are not related to operation of the facility.					

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The trainee shall supervise the manipulation of the facility controls and perform the same duties as a certified senior reactor operator.					
<b>7. OPERATOR PROFICIENCY</b>					
a. Proficiency is maintained by ROs and SROs by actively performing job duties associated with their certification during 5 eight-hour shifts per calendar quarter, during 3 twelve-hour shifts per calendar quarter, or 9 four-hour shifts per calendar quarter.					
b. If criteria is not met certification is suspended, and the person is not assigned certification duties until the person has regained certification.					
Prior to resuming duties associated with certification, the operating contractor ensures that:					
(1) Certification is otherwise current and valid; and					
(2) The RO or SRO has performed certification duties under the supervision of a certified person, as appropriate to the position for a minimum of 24 hours, and includes a complete facility tour and all shift turnover procedures.					
c. If the reactor is not operated frequently enough to meet established requirements, certification is reinstated prior to reactor operation.					

Justification must be supplied for any Exception taken.

ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
<b>CHAPTER III CATEGORY B REACTOR PERSONNEL</b>					
<b>2. ENTRY-LEVEL</b>					
<b>a. Managers</b>					
Meets the following prior to assuming the position.					
(1) Has a BS in engineering or related science.					
(2) Experience; 6 years nuclear. (3)(a) the degree may fulfill 4 years (job related education or experience may substitute for a degree).					
(3)(b) Managers receive facility-specific training based upon comparison of persons background and abilities with position requirements.					
(c) The Training Manager has a Baccalaureate which includes courses in education and technical subjects.					
<b>b. Supervisors</b>					
Meets the following prior to assuming the position.					
(1) Has a High School Diploma.					
(2) Experience; 3 years nuclear of which full-time academic training may fulfill 2 years.					
(3) The reactor supervisor or shift supervisor is a certified SRO.					
<b>c. Operators</b>					
(1) Has a High School Diploma.					
<b>d. Technicians</b>					

Justification must be supplied for any Exception taken.

Rev. # \_\_\_\_\_ Date \_\_\_\_\_ **TABLE 3 - CATEGORY B REACTOR PERSONNEL**

ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
(1) Experience; 1 year job related.					
<b>e. Maintenance Personnel</b>					
(1) Experience; 1 year related maintenance.					
<b>f. Technical Staff Personnel</b>					
(1) Education: Baccalaureate in engineering or related science					
(2) Experience: 2 years Job related and 1 year Nuclear					
<b>g. Training Organization Personnel</b>					
(1) <u>Training Coordinators</u>					
(a) High School Diploma					
(b) 2 years nuclear and 6 months on site					
(2) <u>Training Instructors</u>					
(a) High School Diploma					
(b) Experience: Consistent with the material being presented.					
(c) Special Requirements:					
Instructors who are responsible for instruction on subjects such as Technical Safety Requirements have received senior reactor operator training (or equivalent).					
Instructors have demonstrated knowledge of instructional techniques through training or experience and are qualified by the Training Manager (or equivalent) for the material being presented.					
<b>3. MEDICAL EXAMINATIONS</b>					

Justification must be supplied for any Exception taken.

Rev. # \_\_\_\_\_ Date \_\_\_\_\_ **TABLE 3 - CATEGORY B REACTOR PERSONNEL**

ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
An initial medical examination is administered to candidates.					
Certified reactor operators and certified senior reactor operators are reexamined at least every two years.					
Certified operators and their supervisors are medically cleared prior to returning to work following any sickness or injury which keeps the person from performing duties for a period exceeding one month.					
Examinations are conducted per ANSI/ANS 15.4-1988.					
Medical examination requirements for other operating organization personnel are in accordance with operating contractor procedures.					
<b>4. SPECIFIC TRAINING</b>					
Qualification programs include classroom-type and on-the-job training to assure familiarity with all required aspects of reactor operation, including anticipated transients and accident conditions.					
<b>a. Reactor Operator and Senior Reactor Operator Training</b>					
(2) Senior reactor operator training is sufficiently comprehensive to develop the knowledge and skills commensurate with the position and cover areas which are fundamental to the candidate's job duties.					
(3) Initial and continuing training programs include topic areas from III.4.d. or 4.e, and other categories and topics which are applicable to the facility and to the requirements of the job.					
<b>b. Fuel Handling Operations</b>					
Fuel handling operations are performed by or under direct supervision of a person certified for that task.					

Justification must be supplied for any Exception taken.



Rev. # \_\_\_\_\_ Date \_\_\_\_\_ **TABLE 3 - CATEGORY B REACTOR PERSONNEL**

<b>ORDER REQUIREMENTS</b>	<b>REQ. MET YES/NO</b>	<b>EXCEPTION TAKEN TO REQ. YES/NO</b>	<b>COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION</b>	<b>ACTION TO BE TAKEN BY GROUP/ PERSON</b>	<b>COMP. %/DATE</b>
Additional requirements are met IAW III.4.b.(1)&(2) if fuel handling is not performed by persons qualified for fuel handling under regular RO or SRO certifications.					
<b>c. Control Manipulations</b>					
A control manipulations list is established based on an analysis of job.					
*The list of control manipulations specifies which manipulations are to be performed annually and which are to be performed biennially by ROs and SROs as part of the continuing training program.					
*RO and SRO candidates perform a minimum of five significant reactivity manipulations (e.g., reactor startup, reactor shutdown, >10% change in reactor power) for initial certification.					
<b>d. Reactor Operator Written Examination Contents</b>					
The examination includes a representative sampling from the items listed in III.4.d.(1)-(4) as appropriate to the position and to the facility.					
<b>e. Senior Reactor Operator Written Examination Contents</b>					
SRO examinations are based on the sources discussed in paragraph III.4.d.					
The examination includes a representative sampling from the items listed in III.4.e.(1)&(2), in addition to those required for reactor operators, as appropriate to the position and to the facility.					
<b>f. Operational Evaluations</b>					
*The operational evaluations administered to reactor operator and senior reactor operator candidates are generally similar in scope.					

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Rev. # \_\_\_\_\_ Date \_\_\_\_\_ **TABLE 3 - CATEGORY B REACTOR PERSONNEL**

ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
*Operational evaluations for Category B reactor personnel are similar, but need not be identical, to the operational evaluations for Category A reactor personnel.					
*Significant deviations from the operational evaluations required of Category A reactor personnel are justified in writing and included in the TIM.					
<b>5. OPERATOR PROFICIENCY</b>					
a. Proficiency is maintained by certified reactor operators and senior reactor operators by actively performing job functions associated with their certification for at least four hours per calendar quarter.					
b. If proficiency is not maintained, certification is suspended, and performance of certification duties are not allowed until the person has regained certification.					
Prior to resuming duties associated with certification, the operating contractor ensures that:					
(1) Certification is otherwise current and valid; and					
(2) The RO and SRO performs certification duties under the direct supervision of a certified person, as appropriate to the position, for a minimum period of 6 hours.					
c. If the facility is not operated frequently enough to meet normal proficiency requirements, certification is reinstated prior to facility operation.					

Justification must be supplied for any Exception taken.

ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
<b>CHAPTER IV NON-REACTOR NUCLEAR FACILITY PERSONNEL</b>					
<b>2. ENTRY-LEVEL</b>					
<b>a. Managers</b>					
Meets the following prior to assuming the position.					
(1) Has a BS in engineering or related science.					
(2) Experience; 4 years nuclear. (3)(a) A degree may fulfill 3 years (job related education or experience may substitute for a degree).					
(3)(b) Establish facility-specific training based upon comparison of persons background and abilities with position requirements.					
(c) The Training Manager has a Baccalaureate which includes courses in education and technical subjects.					
<b>b. Supervisors</b>					
Meets the following prior to assuming the position.					
(1) Has a High School Diploma.					
(2)(3) Experience; 3 years nuclear of which full-time academic training may fulfill 2 years.					
<b>c. Operators</b>					
(1) Has a High School Diploma.					
<b>d. Technicians</b>					
(1) Experience; 1 year job related.					
<b>e. Maintenance Personnel</b>					
(1) Experience; 1 year maintenance related.					
<b>f. Technical Staff Personnel</b>					

Justification must be supplied for any Exception taken.

ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
(1) Baccalaureate in engineering or related science					
(2) Experience: 2 years Job related and 1 year Nuclear					
<b>g. Training Organization Personnel</b>					
(1) <u>Training Coordinators</u>					
(a) High School Diploma					
(b) 2 years nuclear and 6 months on site					
(2) <u>Training Instructors</u>					
(a) High School Diploma					
(b) Experience: Consistent with the material being presented.					
(c) Special Requirements:					
Instructors who are responsible for instruction on subjects such as Technical Safety Requirements have received training on facility operating characteristics and principles, and operating limits and their bases					
Instructors have demonstrated knowledge of instructional techniques through training or experience and are qualified by the Training Manager (or equivalent) for the material being presented.					
<b>3. MEDICAL EXAMINATIONS</b>					
The physical demands imposed upon personnel for both routine and emergency functions are determined.					
An initial medical examination is administered to candidates.					
Certified operators, fissionable material handlers, and certified supervisors are reexamined at least every two years.					

Justification must be supplied for any Exception taken.

ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
Certified operators, fissionable material handlers, and certified supervisors are medically cleared prior to returning to work following any sickness or injury which keeps the person from performing duties for a period exceeding one month.					
Medical examination requirements for other operating organization personnel are established by contractor procedures.					
<b>4. SPECIFIC TRAINING</b>					
The depth and scope of training and qualification programs are commensurate with the hazard level and complexity of the operations.					
<b>a. Operators</b>					
Training is sufficiently comprehensive to cover areas which are fundamental to the job duties.					
(1) A core of subjects such as industrial safety, instrumentation and control, basic physics, chemistry, industry operating experience, and major facility systems as applicable to the position and the facility is established.					
(2) Training programs include on-the-job and classroom-type training on the topics identified in IV.4.a.(2)					
<b>b. Fissionable Material Handlers</b>					
Training includes the same categories specified for Operators, and additional categories listed in IV.4.b. to the extent applicable to the position.					
<b>c. Supervisors</b>					
Training includes the categories and on-the-job training specified for Operators and Fissionable Material Handlers to the extent to which they apply, and is of increased depth to reflect the added responsibility of the supervisor position.					
<b>*d. Certified Operator Written Examination Contents</b>					

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ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
The examination includes a representative sampling from the items listed in IV.4.d, in addition to the items listed in paragraph 4a, as appropriate to the position and to the facility.					
<b>e. Certified Supervisor Written Examination Contents</b>					
The examination includes a representative sampling from the items listed in IV.4.e, in addition to the items listed in paragraph IV.4.d, as appropriate to the position and to the facility.					
<b>f. Operational Evaluations</b>					
The operational evaluations administered to certified operator, fissionable material handler, and certified supervisor candidates are generally similar in scope.					
The evaluation contains questions and operational exercises and includes a facility walkthrough, and may include system and/or component operation.					
*Operational evaluations, to the extent applicable to the facility, require the candidate to demonstrate an understanding of, and the ability to perform the actions necessary to accomplish a representative sampling from the items listed in IV.4.f.(1)-(12).					
<b>*g. Control Manipulations</b>					
*A list of control manipulations that is based on an analysis of the job is established.					
*Certified operator, fissionable material handler, and certified supervisor candidates perform control manipulations for initial certification and					
*On a biennial basis as part of the continuing training program after certification is achieved.					
<b>5. OPERATOR, FISSIONABLE MATERIAL HANDLER, AND SUPERVISOR PROFICIENCY</b>					
Certified operators, fissionable material handlers, and certified supervisors actively participate in the job functions associated with their certification.					

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ORDER REQUIREMENTS	REQ. MET YES/NO	EXCEPTION TAKEN TO REQ. YES/NO	COMPLIANCE REFERENCE, CORRECTIVE ACTION, OR JUSTIFICATION	ACTION TO BE TAKEN BY GROUP/ PERSON	COMP. %/DATE
a. Procedures are established by the operating organization which define requirements and frequency necessary to maintain an active status.					
b. If active status (proficiency) is not maintained, certification is suspended.					
Prior to resuming duties associated with certification, the operating contractor ensures that:					
(1) Certification is otherwise current and valid; and					
(2) The certified operator, fissionable material handler, or certified supervisor performs certification duties under the direct supervision of a certified person, as appropriate to the position, for a specific period of time.					
c. If the facility is not operated frequently enough to meet normal proficiency requirements certification is reinstated prior to facility operation.					

Justification must be supplied for any Exception taken.